



(12)

EUROPEAN PATENT APPLICATION
published in accordance with Art. 158(3) EPC

(43) Date of publication:
02.03.2005 Bulletin 2005/09

(51) Int Cl.7: H01F 41/02, C23C 26/00,
B05C 11/08, B05C 13/02

(21) Application number: 03812349.3

(86) International application number:
PCT/JP2003/015268

(22) Date of filing: 28.11.2003

(87) International publication number:
WO 2004/051678 (17.06.2004 Gazette 2004/25)

(84) Designated Contracting States:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PT RO SE SI SK TR

Designated Extension States:

AL LT LV MK

(30) Priority: 29.11.2002 JP 2002348841
11.09.2003 JP 2003319207

(71) Applicant: Neomax Co., Ltd.
Osaka-shi, Osaka 541-0041 (JP)

(72) Inventors:

- YOSHIMURA, Koshi
Hirakata-shi, Osaka 573-0164 (JP)
- OTANI, Tomoku
Yao-shi, Osaka 581-0083 (JP)

(74) Representative: Körfer, Thomas, Dipl.-Phys.
Mitscherlich & Partner,
Patent- und Rechtsanwälte,
Sonnenstrasse 33
80331 München (DE)

(54) **METHOD FOR PRODUCING CORROSION-RESISTANT RARE EARTH BASED PERMANENT MAGNET, CORROSION-RESISTANT RARE EARTH BASED PERMANENT MAGNET, DIP SPIN COATING METHOD FOR WORK PIECE, AND METHOD FOR FORMING COATING FILM ON WORK PIECE**

(57) The objectives of the present invention are to provide a stable and simple method for producing a rare earth metal-based permanent magnet having on the surface thereof a corrosion-resistant film containing fine zinc particles dispersed therein, a corrosion-resistant rare earth metal-based permanent magnet produced by the method, a dip spin coating method being suitable for forming a coating film on thin type work pieces having various shapes, and a method for forming a coating film on a work piece. A method for producing a corrosion-resistant rare earth metal-based permanent magnet of the present invention, characterized in that it comprises providing an aqueous treating fluid, which contains a hydrolysis polymerization product of alkyl silicate and fine zinc particles having an average particle diameter of 1 µm to 50 µm and has a pH value of 6 to 8 and a viscosity of 1000 cP or less, applying the fluid on the surface of a rare earth metal-based permanent magnet, and subjecting the resultant magnet to a heat treatment at 250°C to 400°C, to thereby form a corrosion-resistant film containing fine zinc particles dispersed therein.

Fig. 1

